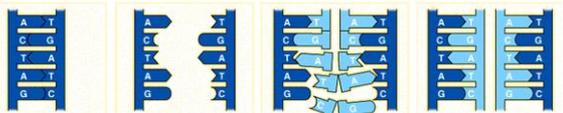
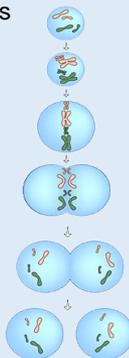


1: DNA Replication

DNA	the carrier of genetic information of an organism in a double helix structure
Nucleotide	the monomer for DNA consisting of sugar phosphate backbone and a base
Replicate	make an exact copy of
Unzip	in DNA replication an enzyme unzips the 2 strands of DNA
Complementary Base Pairs	A-T, C-G
Chromosomes	long thin strands of DNA

**2: Mitosis**

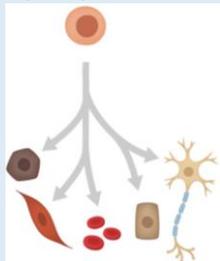
Mitosis	a type of cell division that results in 2 genetically identical daughter cells
Diploid	the full set of chromosomes (46 in humans)
Haploid	half the set of chromosomes (23 in humans). Gametes are an example of haploid cells

**3: Specialised Cells**

Differentiation	the process in which undifferentiated cells become specialised
Specialised Cells	have adaptations to help them carry out a specific function
Adaptation	a characteristic which helps the cell to carry out the required function
Function	the job of the cell
Muscle Cell	Adapted for muscle contraction by having a large number of mitochondria to carry out aerobic respiration
Neurone	adapted for passing electrical impulses around the body by being long and having a myelin sheath to insulate the axon
Palisade Cell	adapted for photosynthesis by having a large number of chloroplasts for photosynthesis

4: Stem Cells

Stem Cell	a cell with the ability to develop in to a specialised cell
Adult Stem Cell	found mainly in the bone marrow in limited numbers and can only differentiate into related cell types
Embryonic Stem Cell	found in embryos and can differentiate into and cell type
Ethics	moral principles of what is right and wrong

**5: Diffusion and Osmosis**

Diffusion	the net movement of particles from an area of high concentration to an area of low concentration
Osmosis	the net movement of water molecules from an area of high water potential (dilute) to an area of low water potential (concentrated) across a semi-permeable membrane
Semi-Permeable	allowing certain substances through but not others
Gradient	a measure of the steepness of a slope or difference between two concentrations
Factors that Increase the Rate of Diffusion	<ul style="list-style-type: none"> • Temperature • Concentration gradient • Surface area • Distance

6: Osmosis Experiment

Independent Variable	the concentrations of sugar/salt solutions (the variable that is changed)
Dependent Variable	the change in mass and length of the tissue (the variable that is measured)
Control Variables	volume of solutions, type of tissue, time the tissue is left in solution for (the variables that are kept constant)
Mass Balance	required to measure the mass
Ruler	required to measure the length
Percentage Increase/Decrease	$(\text{final value} - \text{initial value}) / \text{initial value}$

7: Active Transport

Active Transport the net movement of particles from an area of low concentration to an area of high concentration using energy

Respiration the chemical process that releases energy for life processes

Protein Channels specialised channels in the membrane which are involved in active transport

Small Intestine the part of the digestive system where nutrients are absorbed into the bloodstream

Root Hair Cell the part of a plant where water and nutrients are absorbed from the soil

8: Exchange Surfaces

Exchange Surface an area which is adapted to make it easier for molecules to cross from one side of the surface to the other

Surface Area: Volume Ratio the relationship between the volume and surface area of an object

Alveoli the location of gas exchange in the lungs

Villi where the absorption of nutrients takes place found in the same intestine

Gills the organ in fish where the gas exchange of oxygen from water in to the bloodstream occurs

9: The Heart

Double Circulatory System blood passes through the heart twice per one full circuit of the body

Atria the two upper chambers of the heart

Ventricles the two lower chambers of the heart

Valves Prevent the backflow of blood between chambers of the heart

10: Blood Vessels

Arteries carries blood away from the heart under high pressure. Thick walls, small lumen

Veins carries blood towards the heart under low pressure. Thin walls, large lumen, valves

Capillaries very thin (only one cell thick) blood vessels where substances are exchanged between the blood and body cells

11: Blood

Red Blood Cells carry oxygen around the body. Have a biconcave disc shape to increase surface area, contain haemoglobin to carry oxygen and do not contain a nucleus

White Blood Cells help defend the body against pathogens

Platelets proteins that help clot the blood by sticking together at the site of a wound

Plasma the colourless fluid component of blood that carries substances around the body (e.g. glucose, carbon dioxide and hormones)

12: Xylem and Phloem

Root Hair Cells absorb water and mineral ions from the soil

Translocation the movement of sugars produced in photosynthesis around the plant